

## **REMARKS / ARGUMENTS**

### **I. General Remarks and Disposition of the Claims**

Please consider the application in view of the following remarks. Applicants thank the Examiner for careful consideration of this application, including the references that Applicants have submitted in this case.

At the time of the Office Action, claims 18-29, 31-32, 35-46, 48-61 and 63-77 were pending in this application. Of these, claims 20-24, 27, 37-41, 44, 50-61, 63-64 and 67 were indicated as withdrawn. Claims 18-19, 25-26, 28-29, 31-32, 35-36, 42-43, 45-46, 48-49, 65-66 and 68-77 were rejected in the Office Action. By this paper, claims 18, 35, and 68 have been amended. These amendments are supported by the specification as filed. All the amendments are made in a good faith effort to advance the prosecution on the merits of this case. It should not be assumed that the amendments made herein were made for reasons related to patentability. Applicants respectfully request that the above amendments be entered and further request reconsideration in light of the amendments and remarks contained herein.

### **II. Remarks Regarding Rejections Under 35 U.S.C. § 103(a)**

#### **A. Rejection of Claims 18-19, 25, 28, 31-32, 35-36, 42, 45, 48-49, 65-66, 68-73, 75 and 77 under 35 U.S.C. § 103(a) over *Nguyen* in view of *Martin* and *Beck***

Claims 18-19, 25, 28, 31-32, 35-36, 42, 45, 48-49, 65-66, 68-73, 75 and 77 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,381,864 to Nguyen *et al.* (hereinafter "*Nguyen*") in view of U.S. Patent No. 4,969,523 to Martin *et al.* (hereinafter "*Martin*"), further in view of U.S. Patent No. 4,493,875 to Beck *et al.* (hereinafter "*Beck*"). Applicants respectfully disagree.

In order for a reference or combination of references to form the basis for a rejection under § 103(a), a *prima facie* case of obviousness must be established. Obviousness is determined by construing the scope of the prior art, identifying the differences between the claims and the prior art, determining the level of skill in the pertinent art at the time of the invention, and considering objective evidence present in the application indicating obviousness or nonobviousness. *Graham v. John Deere*, 383 U.S. 1, 17 (1966). In forming a rejection based on a combination of prior art elements,

the proposed modification cannot render the prior art invention being modified unsatisfactory for its intended purpose. See *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984); MPEP § 2143.01.

In the present rejection, the Examiner states that “[i]t would have been obvious to one of ordinary skill in the art at the time the invention was made to have produced sand/SVDB particulate material that closely matches density of carrier liquids in *Nguyen et al* ‘864 in view of *Martin et al.* as composite particles having dense core particles coated with low density particles with the expectation of avoiding the settling problem, as taught by *Beck et al.*” Office Action at 7. Applicants disagree since the proposed combination of *Beck* with *Nguyen* and/or *Martin* would render the invention of *Nguyen* unsatisfactory for its intended purpose.

With respect to *Nguyen*, the invention is directed towards the use of a treating composition comprising a particulate blend. See *Nguyen* Abstract. Specifically, *Nguyen* is directed towards addressing the need for “treating techniques wherein the particulate materials used will both (a) prevent the migration of formation sand and fines and (b) provide high relative production rates.” *Nguyen* at col. 4, ll. 41-44. The use in the prior art described in *Nguyen* of a single sized particulate involves a trade-off between using a large particulate and a small particulate. *Nguyen* at col. 4, ll. 18-36. Large particulates provide high initial permeability but allow for the migration of formation fines into the proppant bed. *Id.* Small particulates prevent the migration of formation sand and fines but have relatively low permeabilities and therefore yield substantially reduced production rates. *Id.* The solution to using a single sized particulate as disclosed in *Nguyen* is the use of a particulate blend comprising a large particulate material and a small particulate material. *Id.* at col. 7, ll. 29-37. The blend allows the individual particulates to form a pack in the formation that “ provides a high permeability flow path to the wellbore and [] prevent[s] the migration of formation sand and fines through the formation fractures.” *Id.* at col 13, ll. 18-34. Example 1 of *Nguyen* demonstrates the improved results obtained using a blend of particulates relative to samples of both relatively large particulates alone and relatively small particulates alone. *Id.* at col. 18, l. 24 – col. 19, l. 11. Thus, the principle of operation of *Nguyen* clearly relies upon the inclusion of a blend of particulates, and the particulates of

*Nguyen* would not be satisfactory for their intended purpose if only a single sized particulate were to be used.

As stated by the Examiner, *Beck* is directed to composite proppant formed by mixing core particles with adhesive and coating the core particles with hollow microparticles to adhere the microparticles to the coated core. *Beck* at col. 2, l. 65 – col. 3, l. 7. These particles are cured to form a single sized particulate prior to being placed in a wellbore. *Id.* Thus, applying the teachings of *Beck* to the particulate blend of *Nguyen* would result in the adhesion of the relatively small particulates to the relatively large particulates prior to being placed in the wellbore. In other words, the combined particulates would have a single size, which is contrary to the purpose and functionality of the invention of *Nguyen*. It should therefore be clear that in forming a rejection based on a combination of *Nguyen* in view of *Beck*, the proposed modification renders the particulate blend, which would become agglomerated, unsatisfactory for its intended purpose. Thus, there is no suggestion or motivation to make the proposed modification. See MPEP 2143.01(V).

For at least this reason, there is no suggestion or motivation to combine the teachings of *Nguyen* with the teachings of *Beck*. Further, the combination of *Nguyen* and *Martin* does not disclose all of the elements of independent claims 18, 35, or 68. Even if *Nguyen* could be modified by the teachings of *Martin*—a position the Applicants do not adopt—the references would not disclose at least “allowing the density reducing material to adhere to a surface of the coated particulate to create at least one reduced-density, coated particulate in the third flowing stream” and combining the third stream with a carrier fluid prior to being placed in the subterranean formation as required by independent claims 18, 35, and 68. Thus, the combination of *Nguyen* in view of *Martin*, further in view of *Beck* fails to obviate claims 18, 35, and 68. Claims 19, 25, 28, 31-32, 36, 42, 45, 48-49, 65-66, 69-73, 75 and 77 depend, either directly or indirectly, from independent claims 18, 35, and 68 and therefore include all the limitations of independent claims 18, 35, and 68. Thus, claims 18-19, 25, 28, 31-32, 35-36, 42, 45, 48-49, 65-66, 68-73, 75 and 77 are patentable over the combination of *Nguyen*, *Martin*, and *Beck*. See 35 U.S.C. § 112 ¶ 4 (2004) Accordingly, for at least these reasons,

Applicants respectfully request withdrawal of this rejection with respect to claims 18-19, 25, 28, 31-32, 35-36, 42, 45, 48-49, 65-66, 68-73, 75 and 77.

**B. Rejection of Claims 18-19, 25, 28, 31-32, 35-36, 42, 45, 48-49, 65-66, 68-73, 75 and 77 under 35 U.S.C. § 103(a) over Nguyen in view of Martin, Beck and Sielcken**

Claims 18-19, 25, 28, 31-32, 35-36, 42, 45, 48-49, 65-66, 68-73, 75 and 77 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over *Nguyen* in view of *Martin* and *Beck*, and further in view of U.S. Patent No. 5,585,524 to Sielcken *et al.* (hereinafter "*Sielcken*"). Applicants respectfully disagree.

As discussed above in Section II.A., there is no suggestion or motivation to combine the teachings of *Nguyen* with the teachings of *Beck*. The teachings of *Sielcken* do not make up for the deficiencies in the proposed combination. Specifically, the Examiner cites *Sielcken* for the alleged teaching of using a CSTR to carry out the continuous mixing process of *Nguyen*. *Sielcken* does not disclose at least "allowing the density reducing material to adhere to a surface of the coated particulate to create at least one reduced-density, coated particulate in the third flowing stream" and combining the third stream with a carrier fluid prior to being placed in the subterranean formation as required by independent claims 18, 35, and 68. Claims 19, 25, 28, 31-32, 36, 42, 45, 48-49, 65-66, 69-73, 75 and 77 depend, either directly or indirectly, from independent claims 18, 35, and 68 and therefore include all the limitations of independent claims 18, 35, and 68. Thus, claims 18-19, 25, 28, 31-32, 35-36, 42, 45, 48-49, 65-66, 68-73, 75 and 77 are patentable over the combination of *Nguyen*, *Martin*, *Beck*, and *Sielcken*. See 35 U.S.C. § 112 ¶ 4 (2004). Accordingly, for at least these reasons, Applicants respectfully request withdrawal of this rejection with respect to claims 18-19, 25, 28, 31-32, 35-36, 42, 45, 48-49, 65-66, 68-73, 75 and 77.

**C. Rejection of Claims 18-19, 25-26, 28, 31-32, 35-36, 42-43, 45, 48-49, 65-66, 68-75 and 77 under 35 U.S.C. § 103(a) over Murphey in view of Martin, Beck and Sielcken**

Claims 18-19, 25-26, 28, 31-32, 35-36, 42-43, 45, 48-49, 65-66, 68-75 and 77 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,128,390 to Murphey *et al.* (hereinafter "*Murphey '390*") in view of *Martin* and *Beck*, and further in view of *Sielcken*.

In order for a reference or combination of references to form the basis for a rejection under § 103(a), a *prima facie* case of obviousness must be established. The United States Supreme court has identified a number of rationales under which a *prima facie* case of obviousness may be established. See *KSR International Co. v. Teleflex, Inc.*, 550 U.S. 398, 127 S.Ct. 1727, 1731 (2007). Each rationale is directed towards identifying known elements in the prior art. See MPEP § 2143. Further, it is improper to combined references where the references themselves teach away from the combination. See MPEP § 2145 X.D. Applicants respectfully submit that the cited references teach away from their combination, and thus, the Examiner has not established a *prima facie* case of obviousness.

Specifically, the Examiner states that the combination used to reject the claims could be based on *Murphey '390*. *Murphey '390* would then be modified to include the particle blend of *Martin* and then the particle blend would be combined to form a single composite particulate using the teachings of *Beck*. In essence, the Examiner has identified individual elements in the prior art and cobbled them together to form the present rejection. However, the references used by the Examiner teach away from their combination.

Even if *Murphey '390* and *Martin* could be combined, the teachings of *Martin* contradict those of *Beck*. With respect to *Martin*, the invention is directed towards the use of particles wherein the particles comprise particles of at least two different densities. See *Martin* Abstract. The particles can be injected as a blend or as sequential slugs. *Id.* The two different densities are preferably chosen so that the "first density [is] less than the density of the carrier liquid and . . . [the] second density [] is greater than the density of the carrier liquid." *Martin* at col. 2, ll. 18-20. In this manner, the upper perforations are packed predominantly by the less dense particles while the lower perforations are predominantly packed by the more dense particles. *Martin* thus relies on the density differences between the particles to improve the packing efficiency in the perforations relative to using a single density particle such as sand. See *Id.* at col. 4, ll. 9-14. Thus, the principle of operation of *Martin* clearly relies upon the inclusion of a blend of particles or sequential slugs of particles with distinct differences

in density. The particles of *Martin* would not function the same if only a single sized particle with a single density were used.

As noted above in Section II.A, *Beck* is directed to composite proppant formed by mixing core particles with adhesive and coating the core particles with hollow microparticles to adhere the microparticles to the coated core. *Beck* at col. 2, l. 65 – col. 3, l. 7. These particles are cured to form a single sized particulate with a density approaching the density of the fluid prior to being placed in a wellbore. *Id.* Thus, applying the teachings of *Beck* to the particle blend or sequential slugs of *Murphey* '390 in view of *Martin* would result in the formation of a single composite particle with a single density prior to being placed in the wellbore. In other words, the combined particles would have a single size and a single density, which is contrary to the purpose and functionality of the invention of *Martin*. It should therefore be clear that the individual references teach away from the combination of the references as presented by the Examiner.

Applicants note that *Sielcken* does not provide any teachings for or against the combination of *Murphey* '390, *Martin*, and *Beck* as *Sielcken* is directed towards a method for the preparation of an aldehyde and does not discuss particulates or hydrocarbon production. Specifically, the Examiner cites *Sielcken* for the alleged teaching of using a CSTR to carry out the continuous mixing process. Office Action at 12-13.

Therefore, Applicants respectfully assert that independent claims 18, 35, and 68 and their dependent claims are not rendered obvious by the combination of *Murphey* '390, *Martin*, *Beck*, and *Sielcken*. Accordingly, Applicants respectfully request withdrawal of this rejection with respect to claims 18-19, 25-26, 28, 31-32, 35-36, 42-43, 45, 48-49, 65-66, 68-75 and 77.

**D. Rejection of Claims 26, 43 and 74 under 35. U.S.C. § 103(a) over Nguyen in view of Martin, Beck, Sielcken, Murphey '390 and Murphey '988**

Claims 26, 43 and 74 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over *Nguyen* in view of *Martin* and *Beck*, or over *Nguyen* in view of *Martin* and *Beck*, further in view of *Sielcken* or over *Murphey* '390 in view of *Martin* and *Beck*,

further in view of *Sielcken*, and further in view of U.S. Patent No. 4,665,988 to *Murphey et al.* (hereinafter "*Murphey '988*").

As discussed above in Sections II.A and II.C, there is no suggestion or motivation to combine the teachings of *Nguyen* with the teachings of *Beck*. As discussed above in Sections II.C, the references teach away from the combination of *Murphey '390*, *Martin*, and *Beck*, with or without *Sielcken*. The teachings of *Murphey '988* do not make up for the deficiencies in the proposed combination. Specifically, the Examiner cites *Murphey '988* for the alleged teaching of ethylene glycol butyl ether as a solvent for dissolving epoxy resins. Office Action at 13. *Murphey '988* does not provide a suggestion or motivation to combine the teachings of *Nguyen* and *Beck*. Similarly, *Murphey '988* does not counteract the disparate teachings of *Murphey '390*, *Martin*, and *Beck*, with or without *Sielcken* that teach away from a combination of the references. Thus, *Murphey '988* does not make up for the deficiencies with either of these combinations.

The combinations of *Nguyen* in view of *Martin* and *Beck*, and/or in further in view of *Sielcken*, or *Murphey '390* in view of *Martin*, *Beck*, *Sielcken*, and *Murphey '988* cannot obviate claims 26, 43 and 74. Accordingly, for at least these reasons, Applicants respectfully request withdrawal of this rejection with respect to claims 26, 43 and 74.

**E. Rejection of Claims 28-29, 45-46 and 75-76 under 35. U.S.C. § 103(a) over *Nguyen* in view of *Martin*, *Beck*, *Sielcken*, *Murphey '390* and *McDaniel***

Claims 28-29, 45-46 and 75-76 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over *Nguyen* in view of *Martin* and *Beck* or over *Nguyen* in view of *Martin* and *Beck*, further in view of *Sielcken* or over *Murphey '390*, in view of *Martin* and *Beck*, further in view of *Sielcken*, and further in view of U.S. Patent Application No. 2002/0048676) to *McDaniel et al.* (hereinafter "*McDaniel*").

As discussed above in Sections II.A and II.C, there is no suggestion or motivation to combine the teachings of *Nguyen* with the teachings of *Beck*. As discussed above in Sections II.C, the references teach away from the combination of *Murphey '390*, *Martin*, and *Beck*, with or without *Sielcken*. The teachings of *Murphey '988* do not make up for the deficiencies in the proposed combination. Specifically, the Examiner cites *McDaniel* for the alleged teaching of a functional equivalency among resins. Office Action at 14.

*McDaniel* does not provide a suggestion or motivation to combine the teachings of *Nguyen* and *Beck*. Similarly, *McDaniel* does not counteract the disparate teachings of *Murphey* '390, *Martin*, and *Beck*, with or without *Sielcken* that teach away from a combination of the references. Thus, *McDaniel* does not make up for the deficiencies with either of these combinations.

The combinations of *Nguyen* in view of *Martin* and *Beck*, and/or in further in view of *Sielcken*, or *Murphey* '390 in view of *Martin*, *Beck*, *Sielcken*, and *McDaniel* cannot obviate claims 26, 43 and 74. Accordingly, for at least these reasons, Applicants respectfully request withdrawal of this rejection with respect to claims 28-29, 45-46 and 75-76.

### **III. Request for Evidentiary Support**

Once again, should any of the above asserted rejections be maintained, Applicants respectfully request appropriate evidentiary support. Additionally, if the Examiner is relying upon "common knowledge" or "well known" principles to establish the rejection, Applicants request that a reference be provided in support of this position pursuant to MPEP § 2144.03. Furthermore, to the extent that the Examiner maintains any rejection based on an "Official Notice" or other information within the Examiner's personal knowledge, Applicants respectfully request that the Examiner cite a reference as documentary evidence in support of this position or provide an affidavit in accordance with MPEP § 2144.03 and 37 C.F.R. 1.104(d)(2).

### **IV. No Waiver**

All of Applicants' arguments and amendments are without prejudice or disclaimer. Additionally, Applicants have merely discussed example distinctions from the cited references. Other distinctions may exist, and Applicants reserve the right to discuss these additional distinctions in a later Response or on Appeal, if appropriate. By not responding to additional statements made by the Examiner, Applicants do not acquiesce to the Examiner's additional statements, such as, for example, any statements relating to what would be obvious to a person of ordinary skill in the art.

### **SUMMARY**

In light of the above amendments and remarks, Applicants respectfully request reconsideration and withdrawal of the outstanding rejections. Applicants further submit



that the application is now in condition for allowance, and earnestly solicit timely notice of the same. Should the Examiner have any questions, comments or suggestions in furtherance of the prosecution of this application, the Examiner is invited to contact the attorney of record by telephone, facsimile, or electronic mail.

Applicants believe that no fees are due in association with the filing of this response. Should the Commissioner deem that any fees are due, including any fees for extensions of time, Applicants respectfully request that the Commissioner accept this as a Petition Therefore, and direct that any additional fees be charged to McDermott Will & Emery's Deposit Account No. 500417, Order Number 086108-0157.

Respectfully submitted,

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